Replaced by Claim 34

Claims

1. A contour collimator (1) for radiotherapy, comprising a plurality of plate-shaped diaphragm elements (101, 102, 103, ...) provided in a guiding block (10) and movably arranged with respect to one another to form a contour diaphragm for a radiation beam (13) emitted by a radiation source (12) towards the collimator, and comprising at least one drive for moving the diaphragm elements,
characterized in
that a drive (111, 112, 113, ...) is associated with each diaphragm element (101, 102, 103, ...),
that the drives (111, 112, 113, ...) of a group of diaphragm elements (101, 102, 103, ...) are arranged substantially adjacent to one another, and
that a driving transmission (121, 122, 123, ...) is provided between each drive (111, 112, 113, ...) and the associated diaphragm element (101, 102, 103, ...).

2. The contour collimator according to claim 1,
characterized in
that the drives (111, 112, 113, ...) are arranged substantially as a semi-circle.

3. The contour collimator according to claim 1 or 2,
characterized in
that each driving transmission (121, 122, 123, ...) has a flexible but tension-resistant and pressure-resistant power-transmitting element (131, 132, 133, ...) one end of which is connected with the associated diaphragm element (101, 102, 103, ...) and the other end of which is connected with the associated drive (111, 112, 113, ...) and which is supported in a moving guide (141, 142, 143, ...) in translatorily movable fashion.

4. The contour collimator according to claim 3,
characterized in

that each power-transmitting element (131, 132, 133, ...) is detachably coupled to the associated diaphragm element (101, 102, 103, ...) via a coupling linkage (151, 152, 153, ...).

5. The contour collimator according to claim 3 or 4, characterized in
that each power-transmitting element (131, 132, 133, ...) is detachably coupled to the associated drive (111, 112, 113, ...) via a further coupling linkage.

6. The contour collimator according to any one of claims 3 to 5,
characterized in
that each power-transmitting element (131, 132, 133, ...) has a spring band.

7. The contour collimator according to any one of the preceding claims,
characterized in
that each drive (111, 112, 113, ...) is formed by a linearly acting motor.

8. The contour collimator according to claim 7,
characterized in
that the motor (111, 112, 113, ...) is an electric linear motor.

9. The contour collimator according to claim 7,
characterized in
that the motor (111, 112, 113, ...) is an electric motor having a linearly acting gearing, preferably a rack-and-pinion gear or a spindle gearing.

10. The contour collimator according to any one of the preceding claims,
characterized in
that the guiding block (10) has upper (16) and lower guide plates (17) which are each provided with a

plurality of upper guide grooves (161, 162, 163, ...) and lower guide grooves (171, 172, 173, ...), respectively, for the diaphragm elements (101, 102, 103, ...).

11. The contour collimator according to claim 10, characterized in
that the upper (16) and lower guide plates (17) are each provided with a preferably rectangular opening (18, 19) which determine the maximum diaphragm opening and have a common middle plane (20) extending substantially rectangularly with respect to the longitudinal direction of the guide grooves (161, 162, 163, ...; 171, 172, 173, ...).

12. The contour collimator according to any one of claims 3 to 11,
characterized in
that the moving guides (141, 142, 143, ...) are arranged substantially side by side in a moving guide block (14) and have moving guide gaps diverging in fan-shaped and bent fashion, in which one power-transmitting element (131, 132, 133, ...) each is accommodated in translatorily movable fashion.

13. The contour collimator according to any one of the preceding claims,
characterized in
that two superposed planes of drive arrangements are associated with each moving guide block (14), one power-transmitting element (131, 132, 133, ...), accommodated in adjacent moving guides (141, 142, 143, ...), being applied by .two superposed drives (111, 112, 113, ...) each.

14. The contour collimator according to any one of the preceding claims,
characterized in

that two opposite groups of translatorily drivable diaphragm elements (101, 102, 103, ...; 101', 102', 103', ...) are provided in the guiding block (10), two opposite diaphragm elements (101, 101'; 102, 102'; 103, 103'; ...) each being guided in lower (161, 161'; 162, 162'; 163, 163'; ...) and upper (171, 171'; 172, 172'; 173, 173'; ...) common guide grooves.

15. The contour collimator according to any one of the preceding claims,
characterized in
that each diaphragm element (101, 101', 102, 102', 103, 103', ...) of a pair of opposite diaphragm elements is movable with its free edge facing away from the respective drive (111, 111', 112, 112', 113, 113', ...) beyond the common middle plane (20) of the openings (18, 19) in the upper (16) and lower (17) guide plates.

16. The contour collimator according to any one of the preceding claims,
characterized in
that at least one displacement pickup (181, 182, 183, ...), preferably a potentiometer, for detecting the position of the corresponding diaphragm element (101, 102, 103, ...) is associated with each drive (111, 112, 113, ...).

17. The contour collimator according to claim 16,
characterized in
that the displacement pickup (181, 182, 183, ...) has a moving potentiometer which can be actuated translatorily.

18. The contour collimator according to any one of the preceding claims,
characterized in
that at least one of the diaphragm elements (106, 107, 108) located in the region of the central middle ray

of the radiation beam (13) is provided with at least one thickening rib (23, 23', 24, 24') extending in the translational direction.

19. The contour collimator according to claim 18, characterized in
that each thickening rib (23, 23'; 24, 24') engages a corresponding groove in the adjacent diaphragm element (107, 108).